

NSG-241US

Appln. No.: 10/516,398
Amendment Dated May 24, 2006
Reply to Office Action of January 24, 2006

Remarks/Arguments:

Claims 1-15 are pending in the above-identified application. Claims 1-2, 4-9, and 11-14 stand rejected. Claims 3 and 10 are objected to. Claim 15 is newly added.

Amendments to the Specification

By this Amendment, the specification is amended to correct issues with grammar. No new matter has been added. Favorable consideration is respectfully requested.

Rejections under 35 U.S.C. § 102(e)

Claims 1-2, 8, and 9 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,473,049 to Takeuchi et al. ("Takeuchi"). Applicants note that the reference numbers included in the arguments for rejections (See Office Action, page 2, paragraph 2) are found in U.S. Patent No. 5,175,561 to Goto, not in Takeuchi. Thus, Applicants believe that the Office Action intended to reject claims 1-2, 8, and 9 in view of Goto. Applicants discuss both Takeuchi and Goto below in responding to the rejections of claims 1-2, 8, and 9.

While not conceding the validity of the rejection, Applicants have amended claim 1 to expedite prosecution. Neither Takeuchi nor Goto nor their combination discloses or suggests:

A planar antenna ... comprising a first surface ...; and

a reflector spaced from said planar antenna . . . said reflector being spaced from said first side of said planar antenna by a predetermined distance

as required by claim 1. (emphasis added).

Goto discloses a radial line slot antenna 10 that comprises a circular upper plate 12, a circular lower plate 14, a matching reflector 18, and reflectors 22. (See Goto, col.5, lines 26-49 and col. 7, lines 4-10). Antenna 10 radiates and receives radio waves via slots in upper plate 12. (See Goto, col. 5, line 63 to col. 6, line 2; col. 7, lines 10-13; col. 18, lines 52-65; FIGS. 28 and 29). As can be seen in FIG. 2, reflectors 22 are disposed within antenna 10 between upper plate 12 and lower plate 14. Reflectors 22 are in contact with both the upper and lower plates and, so, are not "spaced from" the upper plate 12 or lower plate 14 of antenna 10. Accordingly, Goto does not disclose or suggest "a reflector **spaced from** said planar antenna," as required by claim 1.

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Furthermore, in Goto, reflectors 22 are not spaced from a side of antenna 10 but are, instead, located **within antenna 10 itself**. (See Goto, FIG. 2). In fact, reflectors 22 are in contact with upper plate 12 and lower plate 14. Therefore, the placement of reflectors 22 within antenna 10 does not disclose "said reflector **being spaced** from said first side of said planar antenna by a predetermined distance," as required by claim 1.

Takeuchi discloses several embodiments of antenna arrangements. The antenna arrangement in FIG. 1 includes a receiver/radiator 7, a converging member 1, and a glass plate 4. Converging member 1 acts to converge radio waves onto receiver/radiator 7, which radio waves have passed through glass plate 4. (See col. 1, lines 61-67 and FIG. 1). The antenna arrangement illustrated in FIG. 10 of Takeuchi is a common Cassegrain antenna. Neither FIG. 10 nor the description of FIG. 10 teaches that receiver/radiator 41 of the Cassegrain antenna is a planar antenna. Because the antenna arrangement in FIG. 1 does not include reflectors and because the Cassegrain antenna of FIG. 10 does not include a planar antenna, Takeuchi does not disclose "a reflector spaced from said planar antenna . . . said reflector being spaced from said first side of said planar antenna by a predetermined distance," as required by claim 1. Thus, Takeuchi does not provide the material that is missing from Goto.

The subject invention represents an advantage over the antennas described in Goto and Takeuchi because Applicants' use of a reflector spaced from a receiving surface of a planar antenna increases the effective aperture of the planar antenna. Because Goto and Takeuchi do not disclose or suggest all of the limitations of claim 1, claim 1 and claim 2, which depends from claim 1, are not subject to rejection under 35 U.S.C. § 102(e) in view of Goto or Takeuchi. While being in method form, claim 8 is similar to claim 1. Accordingly, claim 8 and claim 9, which depends from claim 8, are not subject to rejection under 35 U.S.C. § 102(e) in view of Goto or Takeuchi.

Rejections under 35 U.S.C. § 103(a)

Claims 4-7 and 11-14 are rejected under 35 U.S.C. § 103(a) as being obvious in view of Takeuchi. Because Takeuchi does not disclose or suggest all of the limitations of claim 1 and does not provide the material that is missing from Goto, as described above, claims 4-7 which depend from claim 1 are not subject to rejection under 35 U.S.C. § 103(a) in view of Takeuchi. While being in method form, claim 8 is similar to claim 1. Accordingly, claim 8 and claims 11-

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14, which depend from claim 8, are not subject to rejection under 35 U.S.C. § 103(a) in view of Takeuchi.

New Claim

By this Amendment, new claim 15 is added. Applicants respectfully submit that claim 15 includes a feature which is neither disclosed nor suggested by Goto, Takeuchi, or their combination, namely:

wherein said reflector forms a reflected image of said planar antenna.

This feature is found in the application, as originally filed, at page 5, lines 1-5 and in FIG. 3. No new matter has been added.

Applicants respectfully submit that reflectors 22 of Goto do not satisfy the limitation of claim 15: "wherein said reflector forms a reflected image of said planar antenna." Goto addresses a problem of inner-excitation type antennas, namely the inefficiency of such antennas due to residual radio waves that reflect within interiors of the antennas and that evade transmission. (See Goto, col. 2, lines 50-62). Goto addresses this problem by including reflectors 22 inside antenna 10. Reflectors 22 release and radiate the residual radio waves through slot 24 during transmission. (See Goto, col. 7, lines 7-10). Presumably, during reception, reflectors 22 reflect residual radio waves to coaxial cable 16. Reflectors 22 do not form a reflected image because they are connected to the antenna and, so, have the same potential as antenna 10. Therefore, Goto does not disclose the above-quoted features of new claim 15.

Applicants also respectfully submit that reflectors 40 and 42 of Takeuchi also do not satisfy the limitation: "wherein said reflector forms a reflected image of said planar antenna." The Cassegrain antenna illustrated in FIG. 10 of Takeuchi does not create a reflected image because reflectors 40 and 42 are shaped, respectively, as paraboloids and hyperboloids. Reflectors 40 and 42 act to gather radio waves for reception by element 41; they do not form a reflected image. Therefore, Takeuchi does not disclose the above-quoted features of new claim 15.

Because neither Goto nor Takeuchi disclose or suggest this limitation, their combination can not disclose or suggest it.

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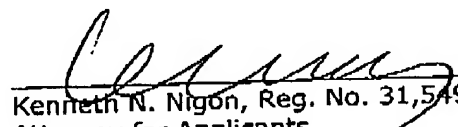
Applicants appreciate the indication in the Office Action that claims 3 and 10 would be allowed if amended to include the limitations of their base claim and any intervening claim. As described above, however, claims 1 and 8 are not subject to rejection in view of the cited references. Accordingly, claims 3 and 10 are not subject to objection.

Conclusion

The prior art made of record but not applied has been considered but does not affect the patentability of the invention.

In view of the foregoing amendments and remarks, Applicants request that the Examiner reconsider and withdraw the rejection of claims 1-2, 4-9, and 11-14 and the objection to claims 3 and 10 and that the Examiner allow newly added claim 15.

Respectfully submitted,


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